

WHAT IS CLAIMED IS:

1. A device for processing a frequency shift keying (FSK) signal including caller ID information comprising:

an analog-to-digital converter (ADC) converting the FSK signal into a digital FSK signal, the FSK signal further comprising a first frequency component, a second frequency component including the caller ID information, and a third frequency component;

a first filter attenuating the first and third frequency components of the digital FSK signal to provide a first signal;

a second filter attenuating the second frequency component of the digital FSK signal to provide a second signal; and

a circuit calculating an energy level for each of the first and second signals, and selecting the first signal for output if the energy level of the first signal is smaller than that of the second signal, and selecting the digital FSK signal for output if the energy level of the first signal is greater than that of the second signal.

2. The device as claimed in claim 1, the ADC further comprising a sigma-delta modulator modulating the FSK signal in a serial digital stream, and a sinc filter down-sampling the serial digital stream.

3. The device as claimed in claim 1, wherein the circuit selects one of the first signal or the digital FSK signal for output in response to a mark signal.

4. The device as claimed in claim 1 further comprising a multiplexer coupled to the circuit for selecting one of the first signal or the digital FSK signal as an output.

5. The device as claimed in claim 1 further comprising a digital comparator for shaping one of the first signal or the digital FSK signal as selected in a square wave.

6. The device as claimed in claim 5 further comprising a match filter coupled to the digital comparator for assigning a logic one to the positive half of the square wave and a logic zero to the negative half of the square wave.

7. The device as claimed in claim 6 further comprising a decoder coupled to the match filter for decoding an output of the match filter.

8. The device as claimed in claim 7 wherein the decoder provides a mark signal to the circuit.

9. A device for processing a frequency shift keying (FSK) modulated caller ID information comprising:

an analog FSK signal further comprising a first frequency component including test information, and a second frequency component including the caller ID information;

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

an analog-to-digital converter (ADC) converting the analog FSK signal into a digital FSK signal;

a bandpass filter attenuating the first frequency component of the digital FSK signal to provide a first signal;

a bandstop filter attenuating the second frequency component of the digital FSK signal to provide a second signal; and

a circuit detecting an energy level each for the first and second signals, comparing the energy levels, and selecting the first signal for output if the energy level of the first signal is smaller than that of the second signal, and selecting the digital FSK signal for output if the energy level of the first signal is greater than that of the second signal.

10. The device as claimed in claim 9, the circuit further comprising a first detector detecting the energy level of the first signal, and a second detector detecting the energy level of the second signal.

11. The device as claimed in claim 9, the circuit further comprising a counter providing a latch signal in response to a mark signal.

12. The device as claimed in claim 11, the circuit further comprising a flip flop providing a select signal in response to the latch signal from the counter.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

13. The device as claimed in claim 12, further comprising a multiplexer coupled to the circuit for selecting from the first signal and the digital FSK signal for output in response to the select signal from the circuit.

14. The device as claimed in claim 9, the ADC further comprising a sigma-delta modulator modulating the FSK signal in a serial digital stream, and a sinc filter down-sampling the serial digital stream.

15. The device as claimed in claim 9, the bandpass filter further comprising a biquad filter.

16. The device as claimed in claim 9, the bandstop filter further comprising a biquad filter.

17. A method of processing a frequency shift keying (FSK) modulated caller ID information comprising the steps of:

providing an analog FSK signal further comprising a first frequency component, a second frequency component including the caller ID information, and a third frequency component;

converting the analog FSK signal into a digital FSK signal;

attenuating the first and third frequency components of the digital FSK signal to provide a first signal;

attenuating the second frequency component of the digital FSK signal to provide a second signal;

determining an energy level for each of the first and second signals;

selecting the first signal for output if the energy level of the first signal is smaller than that of the second signal; and

selecting the digital FSK signal for output if the energy level of the first signal is greater than that of the second signal.

18. The method as claimed in claim 17 further comprising the step of providing a latch signal in response to a mark signal.

19. The method as claimed in claim 17 further comprising the steps of modulating the FSK signal in a serial digital stream and down-sampling the serial digital stream.

20. The method as claimed in claim 17 further comprising the step of providing a mark signal in selecting from the first signal and the digital FSK signal for output.